

SECRET

OSA-0290-69

21 January 1969

MEMORANDUM FOR: Deputy Director of Special Activities  
SUBJECT: Sea Survival in S-1010 Full Pressure Suit  
REFERENCE: Memorandum from [redacted] to DD/SA, dated 25X1A  
9 January 1969, Subject: Sea Survival  
(OSA-0041-69)

Immersion in cold water is one of the major environmental hazards to which a pilot may be exposed. The Aero Medical Staff is researching available information on the effect of full pressure suits on survivability in cold water. If this information is not available or is not applicable to the S-1010 full pressure suit, immersion cold water tests at various temperatures will be conducted using the S-1010 prototype suit. This information would establish a base line for improvement, additions to, or modification of the S-1010 full pressure suit.

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25X1A

[redacted]  
CAPT. USAF ESC  
AMS/OSA

25X1A

AMS/OSA [redacted] bg

Distribution:

Orig - DD/SA  
1 - D/O/OSA  
1 - AMS/OSA  
1 - IDEA/OSA  
1 - INTEL/OSA  
1 - RE/OSA

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9 JAN 1969

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OSA 0041-69 DJ

9 January 1969

MEMORANDUM FOR: Deputy Director of Special Activities

SUBJECT : Sea Survival

1. Despite the many significant developments in pilots' protective systems and equipment in recent years, very little has been done to increase water survivability, particularly when water and air temperatures are less than tropic.

2. I feel there are two possible techniques which, if developed, could significantly increase survival time in cold water. One involves providing additional heat to the body, the other, conserving the body's own heat.

3. The first would combine a "dry type" antiexposure suit, such as the "poopy suit" now in use by the armed forces, with a chemical heat source and, if necessary, a liquid heat circulating system.

4. The second suggestion is to utilize the "foam in place" technique, developed largely by the boating industry, to inflate the full pressure suit with flexible insulating foam such as that used in skin divers' wet suits. Small amounts of a liquid resinous component and a catalyst produce a large volume of foam.

5. I'll be glad to discuss these with [redacted] people or David Clark representatives if you feel I could be of service.

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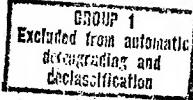
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SIGNED

C: INTEL/O/OSA

25X1A

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IDEA 0109-69  
Copy 6 of 10  
14 January 1969

MEMORANDUM FOR: Deputy for Materiel, OSA, Chairman,  
U-2 Requirements Review Board

SUBJECT: Agenda Item for Next Meeting

REFERENCE: A: Memo from DD/SA dated 8 January 1969;  
Subject: Conversation with [redacted] of  
Intell/OSA on 8 January (IDEA 0099-69)

25X1A

B: Memo from [redacted] dated 9 January 1969; 25X1A  
Subject: Sea Survival (OSA 0041-69)

The reference memoranda contain suggestions for enhancing the survival possibilities of pilots downed over water. It is possible these suggestions have application to the IDEALIST program. It is appropriate that the subject be placed on the agenda of the next U-2R Requirements Review Board for consideration by that body, and that [redacted] brief the Board on his suggestions.

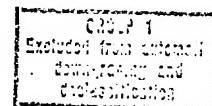
25X1A

[redacted]  
JOHN PARANGOSKY  
Deputy Director of Special Activities

Distribution:

- #1 - D/M/OSA, w/Refs
- #2 - D/O/OSA
- #3 - IDEA/OSA, w/Ref A
- #4 - D/R&D/OSA, w/Refs
- #5 - Compt/OSA, w/Refs
- #6 - AMS/OSA
- #7 - SS/OSA, w/Refs
- #8 - Intel/OSA
- #9 - DD/SA Chrono
- #10 - RB/OSA

IDEALIST



SECRET

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ATTACHMENT # 3

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## 5. Recommendations

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[redacted] visited GN the week  
of 17 March.

Pockets were designed and installed on the S/N 400 prototype exterior cover. These were to contain assorted survival equipment originally packed in the seat kit.

On 18 March cold water exposure tests were conducted using the prototype PPA. The test definitely indicated that additional thermal protection is needed.

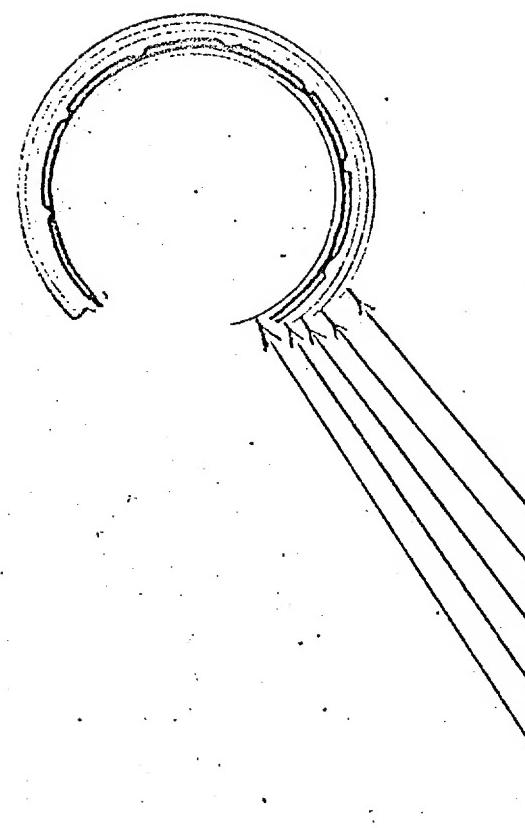
We would like to design and fabricate an anti-exposure layer for the S1010 PPA. It will be an orally inflatable envelope that can be installed between the liner and the gas container layer of the coverall. It will attach to the liner with snaps so that it can be easily installed and removed. This unit would be utilized only when a specific mission could subject the pilot to cold water exposure.

The anti-exposure layer would be fabricated from a thin, lightweight polyurethane-coated nylon material. It would be the same size as the coverall liner, and will cover the subject from the glove disconnects up to the helmet disconnect and down to the lower calf.

Our preliminary intent is that it would be orally inflated after the subject is in his raft, by a tube that is located either at the wrist disconnect or helmet disconnect. The disconnect would be opened, the inflation hose pulled out, and the subject would orally inflate the unit from 2 to 5 millimeters of mercury. This would form a thermal protective layer of air approximately 1/2 inch thick between the subject and the outer layers of the coverall. (See Figure #1).

A pair of mittens would also be provided. They would fit over the full pressure gloves and provide drastically needed protection.

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EXTERIOR COVER

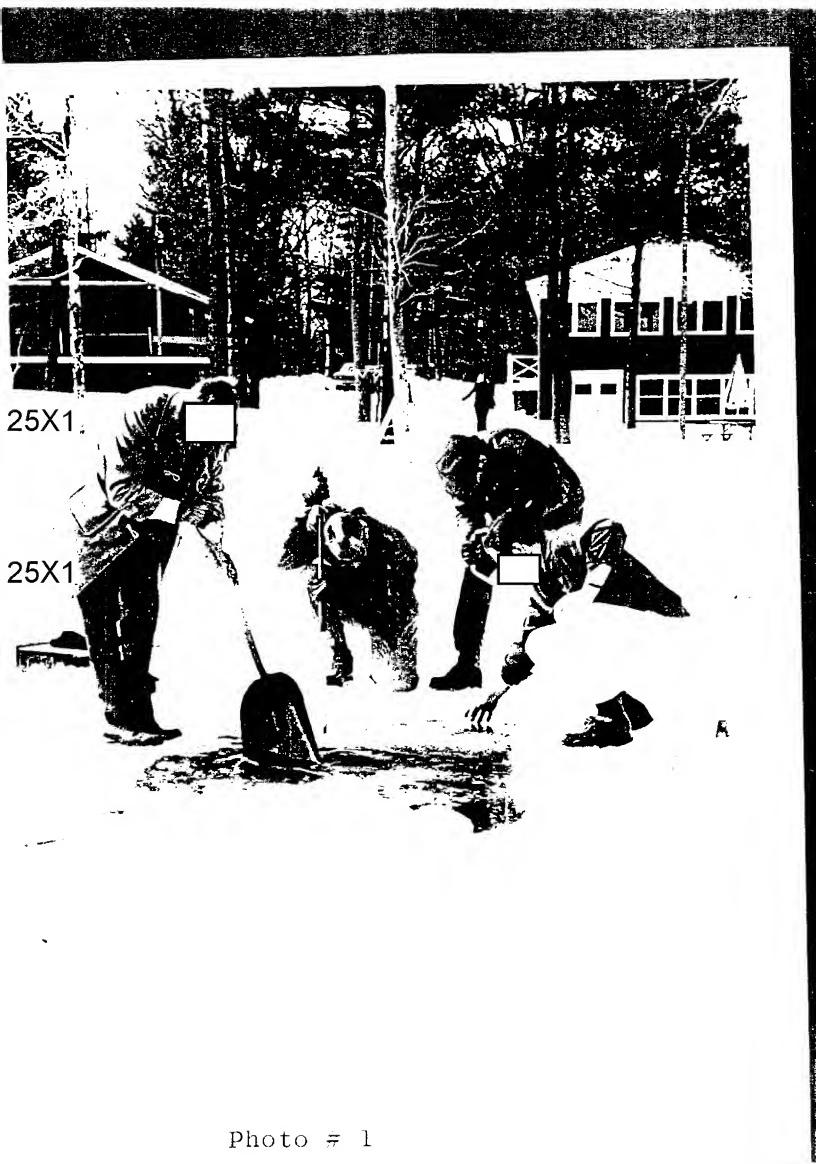
RESTRAINT LAYER

GAS CONTAINER LAYER

INFLATABLE ANTI-EXPOSURE LAYER

LINER

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Photo # 3

Photo # 4

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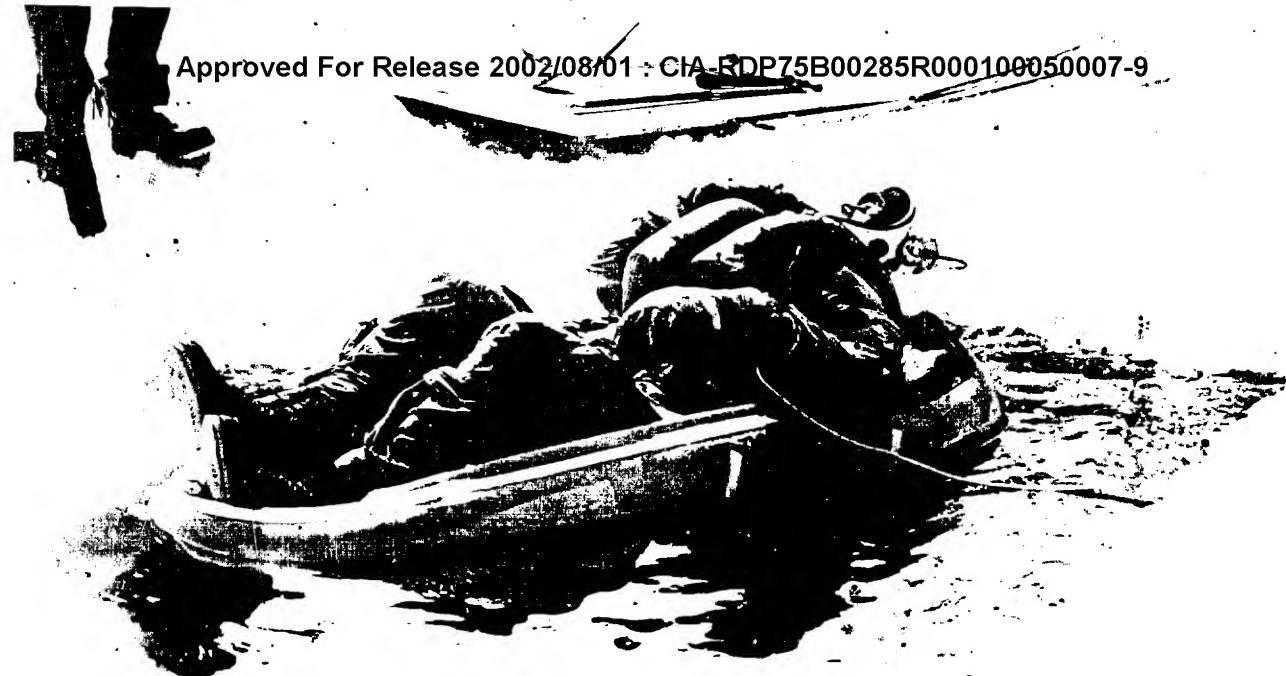


Photo # 5

25X1



Photo # 6

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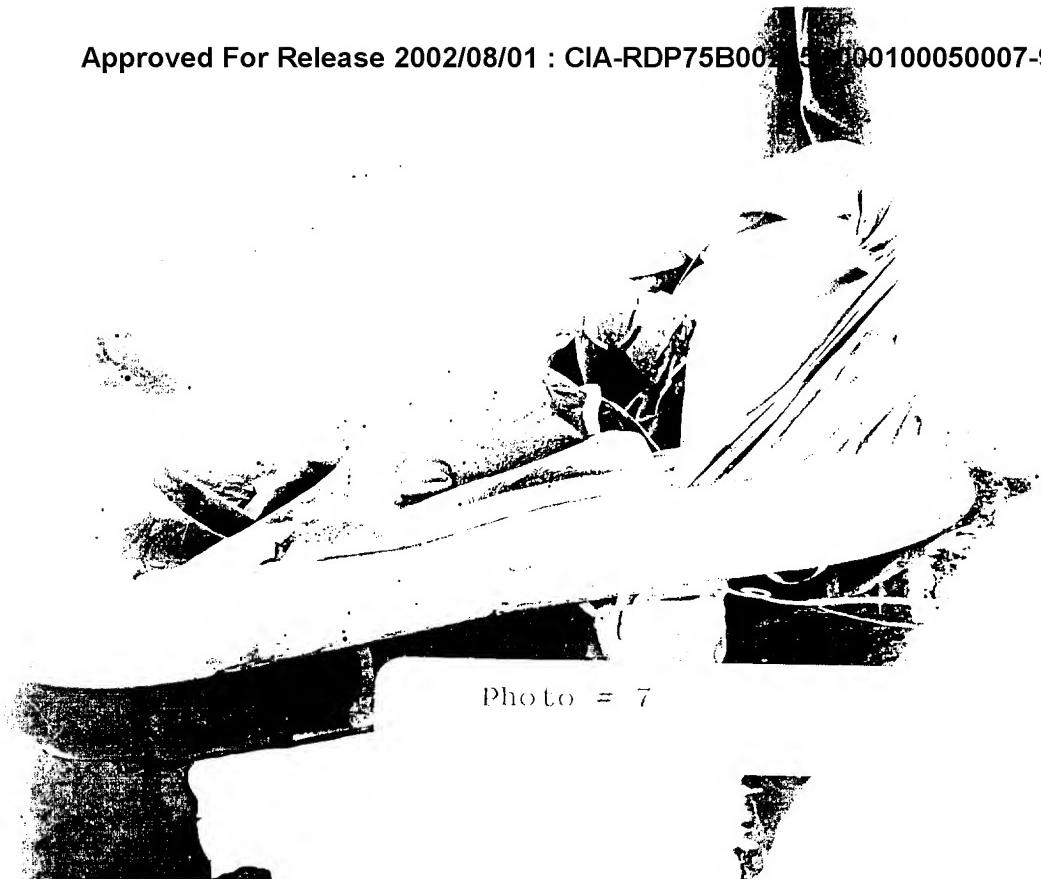


Photo = 7



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Photo # 9



Photo # 10

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25X1

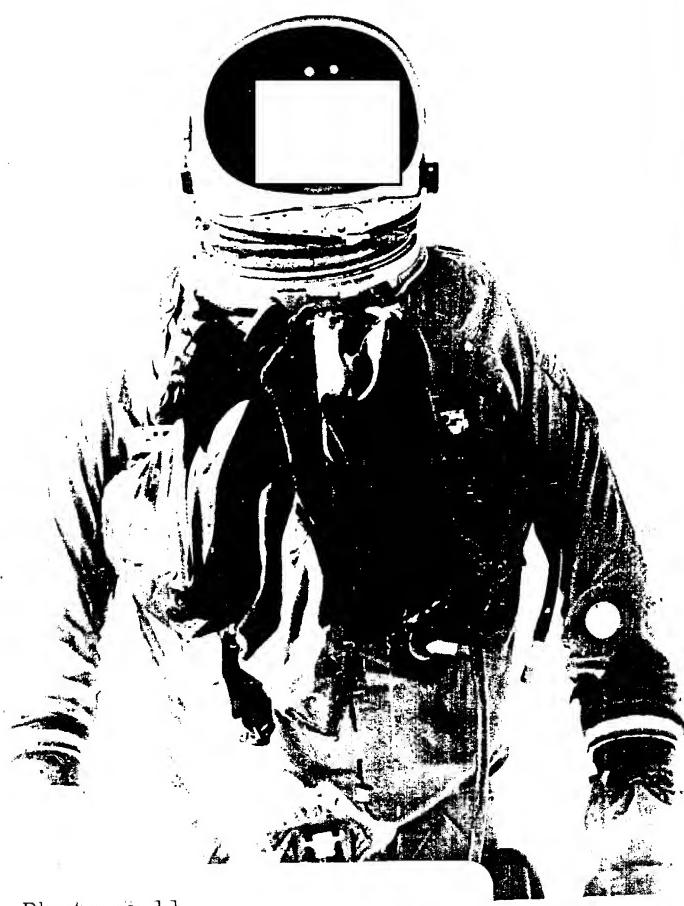


Photo # 11

25X1



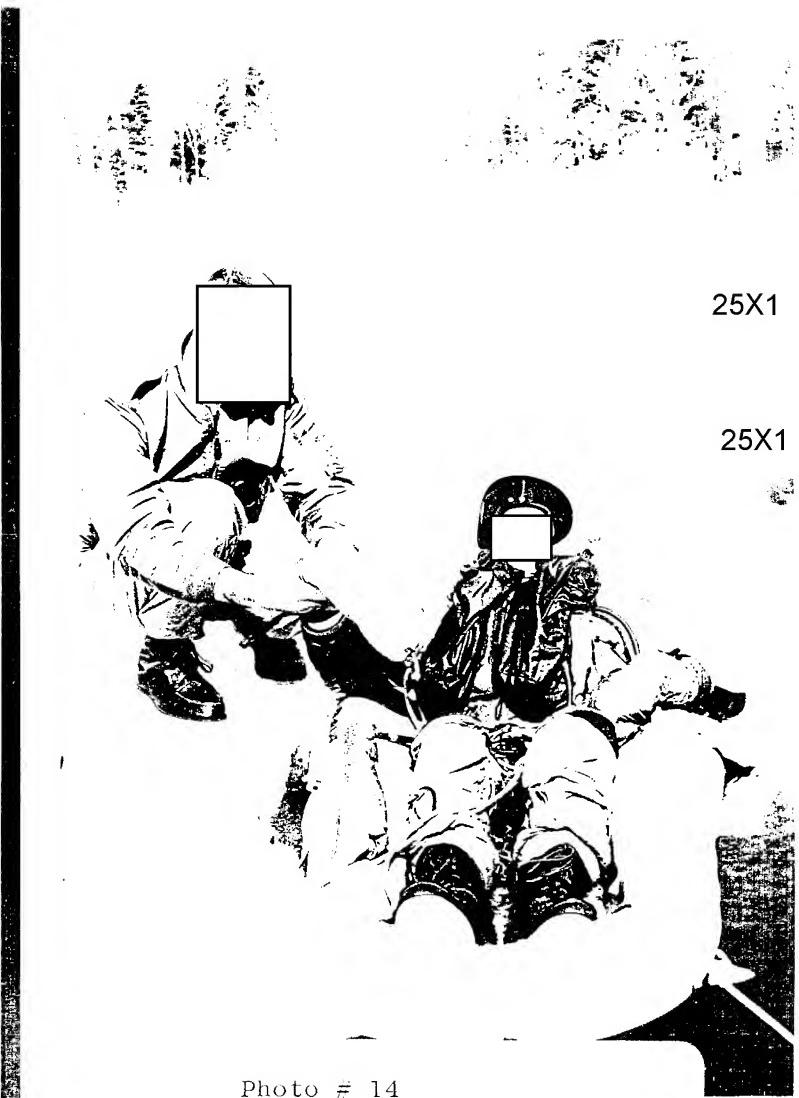
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Photo # 13

Photo # 14

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Photo # 15

Photo # 16

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